

XXI.—On the Birds observed during a Second Zoological Expedition to the Gran Chaco. By J. GRAHAM KERR.

IN 'The Ibis' for 1892* I published an account of the avifauna of the region of the Gran Chaco traversed by the lower reaches of the River Pilcomayo. Spending, as I did during the Pilcomayo Expedition, practically the whole of my time in hunting and collecting, for the most part in company with small parties of Toba Indians, I was enabled to compile a fairly complete list of the birds. I have recently had occasion to visit the Gran Chaco again; this time, however, some 200 miles to the northward of the Pilcomayo. The object of my second expedition having been the accomplishment of a definite piece of zoological research—an investigation into the breeding-habits and embryology of the South-American Lung-fish, *Lepidosiren paradoxa*—I thought it necessary to concentrate my energies upon the solution of the special problem which I had set myself, and I therefore made no attempt to amass general collections. As, however, the particular part of the Gran Chaco in which my investigations were carried on has not hitherto, so far as I am aware, been visited by any ornithologist, it may be useful to other workers to give a short account of the district, coupled with a list of the birds definitely identified, which must necessarily be very incomplete—especially as regards the smaller and less conspicuous Passeres.

Leaving Asuncion, the capital of Paraguay, on September 24th, 1896, I and my companion, Mr. J. S. Budgett of Trinity College, Cambridge, took steamer to Villa Concepcion, which town was selected as our base. Here we spent three weeks completing our preparations and awaiting the arrival of a missionary friend, who was to be our guide into the interior of the Chaco. At Villa Concepcion the River Paraguay is divided into two channels by a low-lying, brush-covered island several miles in length. Beyond the western of these two channels lies typical Chaco country—open palm-dotted savannah, varied by patches of dense forest. On the

* "On the Avifauna of the Lower Pilcomayo," *Ibis*, 1892, p. 120.

Paraguayan or eastern bank, just above the town, is a large laguna, covered in places with a floating growth of beautiful blue-flowered *Pontederia*, amongst which was always to be found a little flock of "Jaçanas" (*Parra jacana*). Flitting along near the margin, specimens of three different species of Kingfishers were frequently observed (*Ceryle torquata*, *C. amazona*, and *C. americana*), and

Fig. 27.



PART OF THE GRAN CHACO,
showing the approximate position of Waikthlatingmayalwa.

perched on some branch overhanging the water might be seen here and there a Cormorant (*Phalacrocorax vigua*), while on the ground sloping down to its edge one of the commonest birds was the little black-and-white *Fluvicola albiventris*, occurring singly or in pairs. The other most

noticeable species about the laguna were the Chajá (*Chauna cristata*), Ducks (*Dendrocyena fulva*) in flocks, Ibises (*Theisticus melanopis*) also in occasional flocks, Lapwings (*Belonopterus cayennensis*), and Herons, of which *Ardea cocoi* was the most common. *Syrigma sibilatrix* was observed at times, and I must not forget to mention the Toco Toucan (*Rhamphastos toco*), of which small companies were often noticed flying across from one piece of woodland to another.

On the western side of the river the country was typical Chaco savannah, while upon the very margin, just opposite Concepcion, was a narrow strip of fine "monte" or wood, in which the most striking birds were the Blue Jays (*Cyanocorax chrysops* and *C. ceruleus*). Hanging from the trees were many nests of *Amblycercus solitarius* and *Cassicus albirostris*, those of the former being larger and formed of brown fibres, those of the latter smaller and of finer black fibres. In passing I may mention one or two of the characteristic mammalian inhabitants: Agoutis were frequently seen, and two species of Opossum were fairly plentiful (*Didelphys azarae* and *D. crassicaudata*). By the river-margins the Carpincho (*Hydrochaeris capybara*) was common, and occasionally we saw an Otter (probably either *Lutra brasiliensis* or *L. paranensis*). The water close to the Chaco shore was shallow, and here the Indians speared the dreaded Sting-ray (*Teniura dumerili*). On the low-lying island in the middle of the river, birds were plentiful, amongst which Ground-Warblers (*Geothlypis velata*), Saltators, Finches (*Spermophila palustris*, *Paroaria capitata*), Oven-birds (*Furnarius rufus*), and Bush-Shrikes (*Thamnophilus radiatus*) were perhaps the most common.

On the evening of October 20th we embarked upon a small steamer, with our horses and stores in a lighter lashed alongside, and started up stream for Carayá Vuelta. In the trees overhanging the river were many Cormorants, and in similar positions the Darter (*Plotus anhinga*) was abundant, sitting for the most part on some dead tree with its wings half expanded. We also saw a few Muscovy Ducks (*Cairina moschata*), an occasional Trogon (*Trogon surucura*), and,

standing motionless on a sandbank, one or two *Jabirus* (*Mycteria americana*).

Next morning, about ten o'clock, we arrived at Carayá Vuelta, an Estancia on the western bank of the Paraguay, a short distance north of the mouth of the Rio Aquidaban. A day was spent there loading up the bullock-carts and making other preparations, and finally, on Oct. 23rd, we started off on our journey into the interior of the Chaco.

The track towards Waikthlatingmayalwa, the mission station whither we were bound, lay roughly in a S.W. direction. At one time it would traverse an apparently limitless palm-dotted savannah, again it would wind in and out along the margin of a piece of dense monte, and anon skirt by the edge of a swamp choked with rich green vegetation. The first rains were already past, and much of the open plain was covered with a few inches of water, so that travelling was very laborious. From this cause and from the intense heat, which caused the animals to be utterly exhausted after a three or four hours' journey, our progress was so slow that I began to fear that I should arrive at the haunts of *Lepidosiren* too late, and find that the fish had already spawned. As the thought of this, meaning the loss of a whole year, was quite intolerable, I decided to push ahead of the carts by forced marches. Accordingly Mr. Budgett and I, taking spare horses and carrying nothing in the way of impedimenta beyond our arms and what we could comfortably convey on our saddles, left the rest of the party on the afternoon of the fifth day, accompanied by an Indian guide; and after two and a half days' journey, uneventful though somewhat tiring, and rendered particularly disagreeable to me by a slight return of low fever, we had the satisfaction of drawing rein at our destination. Here we were most hospitably received by a second local missionary, Mr. Andrew Pride, and at once settled down to work, chafing somewhat at the absence of the carts with our baggage, which did not arrive till eight days later.

Waikthlatingmayalwa (lit. "the place where the people about to encamp found a Tortoise"), where I established my laboratory for the work upon *Lepidosiren*, and the locality

near which most of the birds mentioned hereafter were observed, is a favourite fishing-station of the "Paisiaptó" or "Black-food" division of the Lengua Indians. Situated on an almost imperceptible elevation which rises some two or three feet above the general level of the plain, the settlement is surrounded by country typical of the interior of the Gran Chaco. To the northward is a grassy flat, dotted with the characteristic fan-palms (*Copernicia cerifera*) and varied by islands of dense dicotyledonous forest or "monte." To the south, east, and west stretches the great swamp. Looking across to the south-westward it seems like a great meadow, a line of palm-tops on the distant horizon marking its farther edge. Here and there appears an isolated clump of palm-trees indicating the position of an island. To the north-west and south-east it stretches away for an unknown distance, winding hither and thither over the Chaco plain like a great stream. In the swamp there is but little open water; it is mostly choked up by the dense growth of a tall *Papyrus*-like rush and by coarse swamp-grass bound together by Convolvulaceous and Asclepiadaceous creepers. The deeper parts, through which a sluggish stream meanders, are marked by the soft green colour of the big leaves of the *Thalia* or "Peguaho" as it is called in Guaraní. Where there does happen to be a piece of water free from the larger vegetation its surface is covered by an unbroken mass of floating plants, especially *Pistia* and *Azolla*, upon which we generally found a flock of Jaçanas, daintily picking their way about, and pausing now and then to stretch their beautiful lemon-coloured wings vertically upwards and to hold them motionless in that position, in the charming way so characteristic of this bird. Here and there, especially during the rainy season, were to be seen a small flock of such Ducks as *Cairina moschata* or *Dendrocygna viduata*, with a single individual or pair of the very shy Crested Duck (*Sarcidiornis carunculata*). The swamp furnishes the Indians with their chief fishing-grounds. The Indian fisherman wades through the coarse grass with a long and slender spear, watching for the tell-tale quiver of the vegetation which betrays the presence of a *Lepidosiren* underneath; or he makes his way

to a part of the swamp where the frequent splashes all round tell him of the abundance of teleostean fishes; there he pulls the vegetation aside so as to make a clear pool one or two yards in diameter, throws into it some fragments of the big *Ampullaria* to serve as ground-bait, and then proceeds to angle with a rude fishing-rod, baiting his hook with the muscular foot of the gasteropod. By the latter method in particular he catches two species of Characinidæ—*Macrodon trahira* and *Erythrinus uniteniatus*. These species, as also *Callichthys asper*, *C. littoralis*, and *Symbranchus marmoratus*, form, together with *Lepidosiren*, the main fish-diet of the Indians. Sometimes a party of fishermen are fortunate enough to kill a large Boa, the flesh of which is also very good eating. The Jacaré, probably on account of the denseness of the vegetation, seldom wanders into the swamp, though it occurs in the sluggish streams into which the waters drain. After the rains cease, when the whole of the marsh dries up, the Jacaré retires underground, leaving only a tubular channel to communicate with the upper air, and is thus able to survive till the next rainy season, in the same way as do *Lepidosiren*, *Symbranchus*, and *Ampullaria*. In the height of the wet season the swamp is bounded on all sides by a fringe of more or less open water. Here, where there are half-prostrate palms suitable for perches, is to be heard the weird drumming sound of the Brazilian Cormorant, large numbers of these birds congregating to feed upon the fish-fry. As the visitor passes beyond the water's edge, if the ground is bare, he will probably disturb a flock of five or six Nacundá Goatsuckers (*Podager nacunda*), which lie until he is quite close to them and then rise uttering a soft cry, to flit away a little distance and then alight again, vanishing from view as if by magic the moment they touch the earth.

Beyond the margin of the swamp is the *palmar*, that type of scenery so characteristic of the Chaco—a wide-spreading savannah covered with dense coarse grass and dotted with fan-palms (*Copernicia cerifera*). Here and there are dead palm-stems which, when erect, form the nesting-places of various Ducks, Parrots, and so forth and, when prostrate,

give a home to small mammals such as rats and mice, and the particularly beautiful and conspicuous little mouse-like opossum (*Marmosa pusilla*). In the latter part of summer the females of this opossum are frequently found almost entirely concealed by their young, which cling to the mother up till the time that they are nearly full-grown. In the open *palmar* bird-life is always abundant—Icterids, Finches, Woodpeckers, and Parrots being perhaps the most conspicuous of the smaller species. Occasionally a troop of Rheas may be seen, which are, however, here as elsewhere in the Chaco, extremely shy and difficult to approach. The cry of the Chuña (*Cariama cristata*) is often heard, especially in the early morning, while the sweet plaintive call of *Rhynchotus rufescens* is as characteristic a sound here as it is far south on the Pampa. A conspicuous mammalian inhabitant of the *palmar* is the Venadillo (*Cariacus campestris*), its larger relative the Cierbo (*Cariacus paludosus*) being also common, but frequenting the margins of the swamps.

The islands of monte have naturally their own special fauna. Of birds perhaps the most noticeable, by reason of their harsh cries, are the Charata (*Ortalis canicollis*)—whose extraordinary voice, like the noise of an enormous rattle, heard in the early morning, draws an answer from all the other montes around—and *Aramus scolopaceus*. We often detected the presence of the latter, as we stealthily picked our way along the margin of the monte, by hearing the continuous splashing sound just within it, the bird being busily engaged in breaking the shells of the large gasteropod, *Ampullaria*, which constitutes its favourite food in this region.

Among such surroundings, then, is situated the little collection of huts called Waikthlatingmayalwa, and here Mr. Budgett and I arrived at the beginning of the rainy season—in October. Until the end of the year I was kept busily occupied with my embryological work, but from that time onwards this was rendered impossible by the greatly increased depth of the swamp waters. The whole surrounding country became submerged, and we remained isolated

until the middle of February. By this time the waters had subsided considerably, and we were able to make a start for the River Paraguay. All the horses had been carried off by a mysterious epidemic, and although we had ox-carts for our impedimenta, we found the journey most trying. During the rainy season a dense mass of matted vegetation had grown up everywhere over the submerged ground, through which for twelve days' journey we had to force our way. On the twelfth day we crossed a tributary of the Riacho Verde, making rafts of palm-trunks for our baggage; and thence onwards to the Paraguay the country was dry and waterless, the soil parched and dry, affording the greatest contrast possible to the flooded country we had been passing through before. After spending some weeks in the interior of Paraguay we returned to the Chaco and made a second expedition to Waikthlatingmayalwa for the purpose of observing the dry-season habits of the *Lepidosirens*. Most of the month of May was spent in this work, and thereafter we left finally for the south.

In the appended list of birds I indicate the locality Waikthlatingmayalwa by the initial W.

Fam. I. TURDIDÆ.

1. *TURDUS LEUCOMELAS* Vieill.
W., Nov. 4, 1896.
2. *TURDUS RUFIVENTRIS* Vieill.
W., Oct. 31, 1896, May 5, 1897. Frequent.

Fam. II. MUSCICAPIDÆ.

3. *POLIOPTILA DUMICOLA* (Vieill.).
W. Abundant in open monte.

Fam. III. TROGLODYTIDÆ.

4. *DONACOBUS ATRICAPILLUS* (Linn.).
Lengua, *Hēyānǐng*.
W., Nov. 4, 12, 13, 1896. In brush by edge of swamp.
Iris golden-yellow; bare patch of skin at side of neck bright orange-yellow; feet hazel; bill black.

Fam. IV. MNIOTILIDÆ.

5. GEOTHLYPIS VELATA (Vicill).
Villa Concepcion Island, Oct. 5, 1896.

Fam. V. VIREONIDÆ.

6. CYCLORHIS sp. inc.
W. In monte, Feb. 9, 1897.

Fam. VI. HIRUNDINIDÆ.

7. ATTICORA FUCATA (Temm.).
W. Abundant, Dec. 1896, Jan. 1897.

Fam. VII. TANAGRIDÆ.

8. EUPHONIA CHLOROTICA (Linn.).
Lengua, *Sětsŷp.*
W., Feb. 9, 1897.
9. TANAGRA SAYACA Linn.
Villa Concepcion ; W., Nov. 4, 1896.
Specimens all very cyanopterous.
10. SALTATOR CÆRULESCENS Vieill.
Villa Concepcion ; W.
11. SALTATOR AURANTIROSTRIS Vieill.
W., Nov. 2, 1896.

Fam. VIII. FRINGILLIDÆ.

12. SPERMOPHILA PALUSTRIS BARROWS.
Villa Concepcion.
13. ZONOTRICHIA PILEATA (Bodd.).
Lengua, *Kŷsnĕi.*
Villa Concepcion ; W., Nov. 1896.
14. POOSPIZA MELANOLEUCA (D'Orb. et Lafr.).
W., Jan. 1897. Very common in monte.
15. AMMODRAMUS MANIMBE (Licht.).
Coturniculus peruanus, Arg. Ornith. I. p. 60.
W. Common, Jan. 1897.

16. CORYPHOSPINGUS CRISTATUS (Gm.).

Villa Concepcion, Oct. 13, 1896; W., Nov. 10, 1896.

17. PAROARIA CAPITATA (D'Orb. et Lafr.).

Villa Concepcion, common, Oct. 1896; W., Jan. 15, 1897.

Fam. IX. ICTERIDÆ.

18. CASSICUS ALBIROSTRIS Vieill.

Villa Concepcion. Common. Nests in monte on west bank of river (Oct. 5, 1896).

W., Feb. 7, 1897. Frequent.

19. AMBLYCERCUS SOLITARIUS (Vieill.).

Villa Concepcion, nesting in monte on west bank of Paraguay River, Oct. 5, 1896.

20. MOLOTHRUS BONARIENSIS (Gm.).

W. Very common.

21. MOLOTHRUS BADIUS (Vieill.).

W. Abundant.

22. AGELÆUS RUFICAPILLUS Vieill.

W., Nov. 5, 1896. Common about edges of swamp.

23. LEISTES SUPERCILIARIS (Bp.).

Lengua, *Tūskaiyē*.

W., Dec. 25, 1896, Feb. 9, May 6, 1897. Occasional.

24. AMBLYRHAMPHUS HOLOSERICÆUS (Scop.).

W., Nov. 1896, Feb. 1897.

Common in swamp amongst the *Peguaño* (*Thalia* sp.).

Has a beautiful and plaintive whistle of two notes, the second prolonged and lower in pitch—*Hĩ-hũ*.

25. ICTERUS PYRRHOPTERUS (Vieill.).

W., Jan. 16, 1897. Common.

Fam. X. CORVIDÆ.

26. CYANOCORAX CHRYSOPS (Vieill.).

Villa Concepcion, in company with *C. cæruleus* in monte on western bank of river.

27. *CYANOCORAX CÆRULEUS* (Vieill.).

Villa Concepcion, in monte on western bank of river, along with and nearly as numerous as *C. chrysops*.

W., Jan. 15, 21, 1897. Flocks of seven or eight in monte round station.

Fam. XI. TYRANNIDÆ.

28. *TÆNIOPTERA NENGETA* (Linn.).

Villa Concepcion, near Carayá Vuelta, Oct. 23; W., Nov. 2. Many observed sallying from the top twigs of trees after the manner of *T. irupero*.

29. *TÆNIOPTERA DOMINICANA* (Vieill.).

W.

30. *TÆNIOPTERA IRUPERO* (Vieill.).

In palmar on west bank of Paraguay River opposite Villa Concepcion, Nov. 1896.

W., Oct. 31, Nov. 2, 1897. Many along with *T. nengeta* sallying after insects from the top twigs of trees.

31. *FLUVICOLA ALBIVENTRIS* (Spix).

Villa Concepcion, Sept. 27; a good many by the water's edge, Sept. 28: very common about Villa Concepcion, occurring singly or in pairs by every laguna. W., Nov. 1896.

32. *LICHENOPS PERSPICILLATA* (Gm.).

W., May 7.

33. *MACHETORNIS RIXOSA* (Vieill.).

W., Nov. 12.

34. *EUSCARTHMUS MARGARITACEIVENTER* (D'Orb. et Lafr.).

W., Nov. 1896, Jan. 1897. Common in monte round house.

35. *HAPALOCERCUS FLAVIVENTRIS* (D'Orb. et Lafr.).

W., Nov. 28. A specimen shot in the swamp by Mr Budgett.

36. *PITANGUS BOLIVIANUS* (Lafr.).

Villa Concepcion, Oct. 1896. Very abundant. W., Nov. 1896.

37. PYROCEPHALUS RUBINEUS (Bodd.).

Villa Concepcion, Oct. 1896; W., Jan. 16, 1897.

38. MYIARCHUS TYRANNULUS (Müll.).

Lengua, *Pilkō*.

W., Feb. 9, 1897.

39. EMPIDONOMUS AURANTIO-ATRO-CRISTATUS (D'Orb. et Lafr.) ?

Lengua, *Kispōbābā*.

Villa Concepcion, Oct. 13, 1896.

W. This Tyrant, which Mr. Sclater thinks is in all probability the species here designated, has a concealed crest of red and orange, and a much stronger bill than *Myiarchus tyrannulus*.

40. MILVULUS TYRANNUS (Linn.).

Villa Concepcion, Oct. 1896. Very common, and in small flocks of up to 15 individuals.

W., Nov. 1896.

FAM. XII. DENDROCOLAPTIDÆ.

41. FURNARIUS RUFUS (Gm.).

Villa Concepcion. Very common.

W. Very abundant. Building, Nov. 2, 1896.

42. SYNALLAXIS FRONTALIS, Pelz.

W., Jan. 20, 1897.

43. SYNALLAXIS PHRYGANOPHILA (Vieill.).

W. Common. Building, Nov. 1896.

44. PHACELODOMUS STRIATICOLLIS (D'Orb. et Lafr.).

Villa Concepcion, Oct. 1896. One of the most conspicuous species there, especially noticeable for the loud characteristic duet of the male and female, which was one of the most familiar bird-sounds, as well as for its huge twig-built nest, which we constantly came across in the open scrub.

W., Nov. 1896. Building. Very common.

45. XIPHOCOLAPTES MAJOR (Vieill.).

Lengua, *Siānā*.

Villa Concepcion, Oct. 1896. In monte on western bank

of the River Paraguay. The notes of this bird are very characteristic.

W., Nov. 1896.

46. PICOLAPTES ANGUSTIROSTRIS (Vieill.).

Villa Concepcion, Oct. 1896. Very common in monte on western bank of the river.

W., Nov. 1896. Very common.

47. XIPHORHYNCHUS LAFRESNAYANUS (D'Orb.).

Lengua, *Yatēbithyē*.

W., Nov. 2.

Fam. XIII. FORMICARIIDÆ.

48. THAMNOPHILUS MAJOR, Vieill.

Lengua, *Sälü*.

W., Jan. 16, 1897. In monte; common.

The "song" is very characteristic—a series of sharp notes in falling inflexion, becoming more and more rapidly repeated till they pass into a trill, and ending up with a cry somewhat like that of a cat.

49. THAMNOPHILUS RADIATUS (Vieill.).

Villa Concepcion, Oct. 1896. Amongst brush on island opposite the town.

50. FORMICIVORA STRIGILATA (Max.); *Scl. B. M. C. B.* xv. p. 251.

Lengua, *Kēyūk*.

W., Feb. 2, 1897, ♀. Amongst low bushes in monte.

The Lenguas believe that the cry of this bird sets their shelters and blankets on fire.

[This fine Ant-Thrush has not been previously recorded so far south. Mr. Kerr brought home a single female specimen.—P. L. S.]

Fam. XIV. CAPRIMULGIDÆ.

51. PODAGER NACUNDA (Vieill.).

W., Dec. 10, Dec. 25, Jan. 11. Frequent in small flocks of five or six individuals. During the day they lie close on

the bare ground by the margin of the swamp, rising on the approach of an intruder with a soft cry.

52. *CHORDILES VIRGINIANUS* (Gm.).

W., Jan. 16. (Irides dark brown.) Frequent in monte; lies close on branches of trees.

Fam. XV. PICIDÆ.

53. *COLAPTES AGRICOLA* (Malh.).

Villa Concepcion. Palmar in Chaco opposite Waikthala-tingmayalwa, Dec. 10.

54. *LEUCONERPES CANDIDUS* (Otto).

Melanerpes candidus Harg. B. M. C. B. xviii. p. 148.

W., Oct. 31, Nov. 6. Singly or in small parties of three or four.

55. *MELANERPES CACTORUM* (D'Orb. et Lafr.).

Picus cactorum, Arg. Ornith. ii. p. 19.

W., Nov. 4.

56. *CELEUS KERRI* Harg.

W., Jan. 15. Obtained on several occasions.

57. *CAMPEPHILUS BOIÆI* (Wagl.).

Campophilus leucopogon Harg. B. M. C. B. xviii. p. 466.

W., Oct. 31, Nov. 11, May 5. Frequent.

Fam. XVI. ALCEDINIDÆ.

58. *CERYLE TORQUATA* (Linn.).

Villa Concepcion, Sept. 27, 28. Common.

W., Jan. 1897.

59. *CERYLE AMAZONA* (Lath.).

Villa Concepcion, Sept. 28.

60. *CERYLE AMERICANA* (Gm.).

Villa Concepcion, Sept. 28.

Not quite so common at Concepcion as the preceding two species.

Fam. XVII. TROGONIDÆ.

61. *TROGON SURUCURA* Vicill.

Carayá Vuelta, Oct. 22.

Fam. XVIII. CUCULIDÆ.

62. *COCCYZUS AMERICANUS* (Linn.).

W. Common in open monte, Nov., Jan.

63. *DIPLOPTERUS NÆVIUS* (Linn.).

Villa Concepcion. Cry very often heard in the Chaco opposite the town. Oct.

64. *CROTOPHAGA MAJOR* Gm.

Villa Concepcion.

65. *CROTOPHAGA ANI* Linn.

Villa Concepcion, Oct. 1896. Very abundant.

W., Nov. 1896.

66. *GUIRA PIRIRIGUA* (Vieill.).

Guira guira Shelley, B. M. C. B. xix. p. 433.

Villa Concepcion, Oct. 1896. Common.

W., Nov. 1896.

Fam. XIX. RHAMPHASTIDÆ.

67. *RHAMPHASTOS TOCO* Müll.

Villa Concepcion, flock of five, Sept. 28; near Riacho Verde, Oct. 25.

Fam. XX. PSITTACIDÆ.

68. *ARA AURICOLLIS* (Cass.).

Macaws apparently belonging to this species were observed on several occasions near the Riacho Verde, but I was unable to get within shot.

69. *CONURUS ACUTICAUDATUS* (Vieill.).

W., Nov. 4.

70. *CONURUS NENDAY* (Vieill.).

Near Carayá Vuelta, Oct. 23; Oct. 26, common near Riacho Verde.

W., Nov. 1896. Very common in large flocks.

71. *BROTOGERYS CHIRIRI* (Vieill.) (?).

Lengua, *Yätŭpkāsĭk*.

W., Jan. 14.

I shot a single specimen of a small Parrot with a yellow

patch on the wing-coverts, apparently belonging to this species, but it was unfortunately lost and I am unable now to identify it with certainty.

72. *BOLBORHYNCHUS MONACHUS* (Bodd.).

W., Oct. 31.

73. *CHRYSOTIS ÆSTIVA* (Linn.).

Numerous, S. Pedro, Sept. 25. Villa Concepcion. W.; common.

74. *PIONUS MAXIMILIANI* (Kuhl).

Near W., Feb. 23.

Fam. XXI. BUBONIDÆ.

75. *SPEOTYTO CUNICULARIA* (Mol.).

I obtained a specimen at Waikthlatingmayalwa, the only one I have ever seen so far north on the Chaco side of the River Paraguay, though this species is quite common on the eastern or Paraguayan side.

76. *BUBO VIRGINIANUS* (Gm.).

W., Nov. 13. Occasional. Favourite food grasshoppers.

Fam. XXII. FALCONIDÆ.

77. *GERANOÆTUS MELANOLEUCUS* (Vieill.).

W., Jan. 1897. Occasionally seen soaring.

78. *BUSARELLUS NIGRICOLLIS* (Lath.).

Villa Concepcion, on Riacho Negro, Oct. 9, 1896.

79. *POLYBORUS THARUS* (Mol.).

Villa Concepcion; Carayá Vuelta, Oct. 23. W. Very common.

Fam. XXIII. CATHARTIDÆ.

80. *CATHARTES AURA* (Linn.).

Villa Concepcion.

W. Less common than *C. atratus* and much more solitary in habits. Large numbers seen on Feb. 28th.

81. CATHARTES ATRATUS (Bartram).

Villa Concepcion; W. Very abundant.

Fam. XXIV. PHALACROCORACIDÆ.

82. PHALACROCORAX BRASILIANUS (Gm.).

Phalacrocorax vigua Grant, B. M. C. B. xxvi. p. 378.

Villa Concepcion, Sept. 27. Very many on Riacho Verde, Feb. 25.

W. Very common in the wet season about open water at the edge of swamps; the birds sit on palms or palm-stumps on the watch for fishes. When disturbed they will fly round and round at a small elevation, and it is a favourite sport with the Lenguas to try to bring them down by whirling a stout stick some two feet long amongst them as they pass.

Fam. XXV. PLOTIDÆ.

83. PLOTUS ANHINGA Linn.

Villa Concepcion.

Very common on Rio Paraguay, Oct. 1896. Perches at nightfall on tall trees. During the day seen swimming or resting on dead trees by the water's edge. Often disappears beneath the surface for some time. On trees it will sit with the wings half spread out as if sunning itself.

Fam. XXVI. ARDEIDÆ.

84. ARDEA COCOI Linn.

Villa Concepcion, Sept. 28. Common. W.

85. ARDEA EGRETTEA (Wils.).

Villa Concepcion: flock, Oct. 10. W., Dec. 16, several; flock, Dec. 30. Near W., Feb. 16.

On Feb. 25th, when passing a tributary of the Riacho Verde, we found an enormous assemblage of Herons containing several hundreds of individuals, and amongst them this species was the most numerous.

86. ARDEA CANDIDISSIMA (Gm.).

W., Dec. 1, Dec. 16. Riacho Verde, Feb. 25.

87. *CANCROMA COCHLEARIA* Linn.

The head of this bird was occasionally seen amongst the objects carried by the Indians in their small network bags.

88. *SYRIGMA SIBILATRIX* (Temm.).

Villa Concepcion, Sept. 27, 28; W., Jan. 18.

89. *PILERODIUS PILEATUS* (Bodd.).

Pilerodius pileatus Sharpe, B. M. C. B. xxvi. p. 171.

A white Heron with dark cap, apparently belonging to this species, was seen about the Riacho Verde.

90. *TIGRISOMA MARMORATUM* (Vicill.).

Riacho Verde, Feb. 25.

91. *ARDETTA ERYTHROMELAS* (Vicill.).

W., Dec. 30.

Fam. XXVII. CICONIIDÆ.

92. *EUXENURA MAGUARI* (Gm.).

W., Nov.

93. *MYCTERIA AMERICANA* Linn.

Carayá Vuelta, Oct. 22; W., Nov. 5, Dec. 16, flock.

Large flock at Riacho Verde, Feb. 25.

94. *TANTALUS LOCULATOR* Linn.

On journey, Feb. 28, many; W., large flock, Feb. 8, 1897.

Fam. XXVIII. PLATALEIDÆ.

95. *THERISTICUS MELANOPIS* (Gm.).

Theristicus caudatus, Arg. Ornith. ii. p. 110.

Theristicus melanopis Salvad. Ibis, 1900, p. 511.

Villa Concepcion, Sept. 30, a flock; Chaco, near Carayá Vuelta, many, Oct. 23; many between Carayá Vuelta and Riacho Verde, Oct. 25; near W., Oct. 29; flock of 20, Nov. 3; many feeding in camp, Dec. 16.

W., common in small flocks.

96. *HARPIPRION CÆRULESCENS* (Vicill.).

W., Nov. 21, Dec. 1. Frequent.

97. *PHIMOSUS INFUSCATUS* (Licht.).

Villa Concepcion, Oct. 1896.

W., single individuals occasionally seen.

98. PLEGADIS GUARAUNA (Linn.).

Near W., Oct. 29.

99. AJAJA ROSEA Reichenb.

Villa Concepcion, Oct. 9. Flock; also singly.

Fam. XXIX. PALAMEDEIDÆ.

100. CHAUNA CRISTATA (Sw.).

Chauna chavaria, Arg. Ornith. ii. p. 119.

Villa Concepcion, a pair, Oct. 10.

W., Nov. 4. Occasional pairs seen.

Fam. XXX. ANATIDÆ.

101. CAIRINA MOSCHATA (Linn.).

Villa Concepcion; Carayá Vuelta, Oct. 21; Riacho Verde, Oct. 27. Near W., Oct. 29. W., many in swamp, Oct. 30; Dec. 1, many.

Villa Concepcion, Oct. Abundant, singly and in pairs.

W. Very common, the most abundant Duck except *Dendrocygna viduata*.

102. SARCIDIORNIS CARUNCULATA (Illig.).

W., Oct. 31, Nov. 2, Dec. 10.

Frequently seen about the margins of the swamp, singly and in pairs. Extremely shy and difficult to approach.

103. DENDROCYCNA VIDUATA (Linn.).

Villa Concepcion. Oct. 27, Riacho Verde. Near W., Oct. 29.

W. Abundant. This species was the most common Duck in the neighbourhood of Waikthlatingmayalwa. It breeds in hollow palm-trees, the nest being of decayed wood, lined with down.

104. DENDROCYCNA FULVA (Gm.).

Villa Concepcion, large flock, Sept. 30; flock, Oct. 10.

W., Nov. 27. Frequent.

105. QUERQUEDULA BRASILIENSIS (Gm.).

Villa Concepcion; near W., Oct. 29, Nov. 2, Jan. 14.

106. *QUERQUEDULA TORQUATA* (Vieill.).

W., Nov. 21, Nov. 27, Dec. 16. Frequent.

107. *METOPIANA PEPOSACA* (Vieill.).

W., Dec. 16, a pair.

A few during the latter part of January. Mr. Pride found them much more abundant several days' journey to the westward.

Fam. XXXI. *C O L U M B I D Æ.*

108. *COLUMBA PICAZURO* Temm.

W., Nov. 5, Dec. 30, Jan. 16. Very common.

109. *ZENAIDA MACULATA* (Vieill.).

Villa Concepcion, Oct. 13, 1896.

W., Nov. 2, Jan. 3. Common.

110. *COLUMBULA PICUI* (Temm.).

W. Very abundant.

111. *CHAMÆPELIA TALPACOTI* (Temm.).

W., Nov. 11. Abundant.

Fam. XXXII. *C R A C I D Æ.*

112. *ORTALIS CANICOLLIS* (Wagl.).

Villa Concepcion; near Carayá Vuelta, Oct. 23, Oct. 25.

W. Common in the monte.

Fam. XXXIII. *R A L L I D Æ.*

113. *ARAMIDES YPACAHA* (Vieill.).

Villa Concepcion, Oct. 1896. Cries frequently heard on both banks of the Paraguay.

W. Occasionally heard.

Fam. XXXIV. *A R A M I D Æ.*

114. *ARAMUS SCOLOPACEUS* (Gm.).

Lengua, *Köhlü*.

W., Oct. 31, Nov. 1. Very many observed. Many, W., Dec. 30, Jan. 4, Feb. 2.

W. Very frequent. In the morning the birds utter loud cries, answering one another from neighbouring tree-tops. The harshness of the sound gives rise to a curious custom amongst the natives. A Lengua will not eat the flesh of the Kōlū within some time of his wife's confinement; his doing so would cause the young child to cry all night. Nests amongst the coarse grass of the swamp. The young bird is Rail-like in appearance, with uniform dark-brown down.

Fam. XXXV. CARIAMIDÆ.

115. CARIAMA CRISTATA (Linn.).

Lengua, *Tūmūmhīt*.

W., Dec. 13; near W., Feb. 16.

Cries frequently heard in the camp; the bird itself occasionally seen in bare open spaces, running hurriedly away. At night roosts in trees. The favourite food consists of frogs.

Fam. XXXVI. PARRIDÆ.

116. PARRA JACANA (Linn.).

Villa Concepcion, Sept. 28. Very common on the lagunas.

W. Common in patches of open water in the swamp, feeding on the floating carpet of *Pistia* and *Azolla*.

Fam. XXXVII. CHARADRIIDÆ.

117. VANELLUS CAYENNENSIS (Gm.).

Villa Concepcion, Sept. 28, Oct. 10. Very common.

W., Dec. 10. Common.

118. CHARADRIUS DOMINICUS Müller.

W., Nov. 21.

119. ÆGIALITIS COLLARIS (Vieill.).

W. Occasional.

120. HIMANTOPUS BRASILIENSIS Vieill.

W., Jan.

Fam. XXXVIII. SCOLOPACIDÆ.

121. TOTANUS MELANOLEUCUS (Gm.).

W., Nov. 21.

122. ACTITURUS BARTRAMIUS (Wilson).

W., Nov. 27.

123. RHYNCHÆA SEMICOLLARIS (Vieill.).

Lengua, *Waikyě askük* (= cow beast).

W., Jan. Frequent.

Fam. XXXIX. LARIDÆ.

124. RHYNCHOPS INTERCEDENS Saunders.

Rhynchops melanura, Arg. Ornith. ii. p. 193.*Rhynchops intercedens* Saund. B. M. C. B. xxv. p. 155.

W., Nov. 1896.

One specimen was shot at Waikthlatingmayalwa. I had never before met with this species in the Chaco.

Fam. XL. PODICIPEDIDÆ.

125. PODILYMBUS PODICEPS Linn.

Shot by Mr. Pride several days' journey to the westward.

Fam. XLI. TINAMIDÆ.

126. RHYNCHOTUS RUFESCENS (Temm.).

Between Carayá Vuelta and Riacho Verde, Oct. 25; W., Dec. 25.

Common in the open palmar about Waikthlatingmayalwa.

Fam. XLII. RHEIDÆ.

127. RHEA AMERICANA (Linn.).

A pair between Carayá Vuelta and Riacho Verde, Oct. 23.

Near W., Oct. 29.

Frequent in the Chaco about Waikthlatingmayalwa, but very shy, as in other parts of the district, being much hunted by the Indians. They use the skin of the body to make large bags in which to store their wool for spinning.